

## Revision of the Eastern Pacific Fishes of the Clinid Genus *Labrisomus*

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(Text-figures 1-9)

**D**URING my investigation of the eastern Pacific clinid fishes (Hubbs, 1952), I proposed a partial revision of the genus *Labrisomus* and discussed its taxonomic position. Further study of the specimens on which my *Labrisomus* conclusions were based, and of recently collected material, has made possible a more complete analysis of the eastern Pacific species.

I consider that the eastern Pacific fishes of the genus *Labrisomus* comprise eight species: *striatus* new, *wigginsi* new, *dendriticus* (Reid), *jenkinsi* (Heller & Snodgrass), *philippii* Steindachner, *socorroensis* new, *xantusi* Gill, and *multiporosus* new. I group these eight species in three subgenera: *striatus* in *Brockius* new, *wigginsi* and *dendriticus* in *Odontoclinus* Reid, and the last five in *Labrisomus* Swainson. The systematic position of the Atlantic species will be discussed in another paper. I follow my 1952 conclusions and place *Labrisomus* and *Malacoctenus* in the subtribe Labrisomini, which together with the Calliclinini forms the tribe Labrisomidi, which joins the Cryptotremidi, Starksiiidi, Paraclinidi, and Mnierpidi to comprise the subfamily Labrisominae, one of the two subfamilies of the Clinidae.

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Except for Text-fig. 8 drawn by Grace Hewitt, the drawings were made by Grace Hewitt from sketches by the author. For clarity, no scales were drawn.

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### METHODS

The measurements and counts used in this work are those defined by Hubbs & Lagler (1947). Counts are listed by the extreme range followed by the typical range in parentheses.

Many specimens examined are catalogued at several museums. The following abbreviations for these museums are used: CAS — California Academy of Sciences, CNHM — Chicago Natural History Museum, MCZ — Harvard Museum of Comparative Zoology, SU — Stanford Natural History Museum, TNHC — Texas Natural History Collection, UCLA — Zoological Collections of the University of California at Los Angeles, USNM — United States National Museum.

Frequently I use specific and generic names to substitute for the fish populations that make up that species or genus. It is obvious that *Labrisomus xantusi* does not occur throughout the Gulf of California, but that specimens sampled from the populations comprising the species that is called *Labrisomus xantusi* have been collected throughout the Gulf of California. *Xantusi* is not included in *Labrisomus*, but the fishes collected from the populations comprising the species *xantusi* have morphologic (and probably genetic and physiologic) characters in common with specimens sampled from other populations that make up the other species that are included in *Labrisomus*. In each of the above examples the first statement is briefer and more easily understood than the longer and complicated restatement, which is more precise. The utilization of a brief and more easily understood style is preferable if both the author and the reader understand that the scientific name also stands for the populations comprising that species.

#### NOMENCLATURE

The name *Labrisomus* was proposed by Swainson (1839). He included 12 species (two doubtfully), all proposed by Cuvier & Valenciennes, and designated *Clinus pectinifer* as type. Only two of the 12, *capillatus* and *pectinifer*, are here retained in *Labrisomus*. Both species have been considered by recent authors as synonyms of *Clinus nuchipinnis* Quoy & Gaimard. The other ten species have been placed in various genera by subsequent authors. I place them in the following genera: *delalandi* in closely related *Malacoctenus* Gill; *variolosus*, *microcirrhis* and *peruvianus* in *Auchenionchus* Gill, a genus which I place in the tribe Labrisomidi; *geniguttatus* and *elegans* in *Calliclinus* Gill, also included in the Labrisomidi and together with *Auchenionchus* in the subtribe Calliclinini; *latipennis* in *Clinus* Cuvier, considered a member of the Clininae; *linearis* in *Blennioclinus* Gill, also a member of the Clininae; *gobio* in *Tripterygion* Risso or a related genus in the family Tripterygiidae; and *littoreus* in the percoid genus *Acanthoclinus*.

Gill (1860) regrouped in several genera the species included in *Labrisomus* by Swainson. Of the five species Gill placed in *Labrisomus* (he changed the spelling to *Labrosomus*), two, *pectinifer* and *capillatus*, remained from Swainson's inclusive genus; two, *fasciatus* (Castlenau) and *herminieri* (LeSueur), were for the first time included in *Labrisomus*; the fifth, *xantusi*, described in Gill's paper, extended the known generic range to the eastern Pacific.

During subsequent years many authors have added to the knowledge of the group. However,

most are local faunal studies, such as that of a particular West Indian island. Often these papers include as new species all *Labrisomus* except the one that looks like *nuchipinnis*; probably many must be reduced to synonymy.

For the three subgenera I have set up, *Labrisomus* is, of course, available for one. For the other two, three available names were considered: *Lepisoma*, *Ericteis* and *Odontoclinus*. DeKay (1842) proposed *Lepisoma* for his new species *cirrhosum*. As *cirrhosum* is probably a synonym of *Labrisomus nuchipinnis* (of which *L. pectinifer* is also probably a synonym) I consider *Lepisoma* a synonym of the subgenus *Labrisomus* and as such, available only as a substitute for *Labrisomus*. The next oldest available name is *Ericteis* proposed by Jordan (1904) to include *E. kalisherai* Jordan. Until the Atlantic species of *Labrisomus* are further examined, it is not possible to determine the exact systematic position of *kalisherai* and whether *Ericteis* should be used for another subgroup of *Labrisomus* species. The third name, *Odontoclinus*, proposed by Reid (1935) for *O. dendriticus* Reid, is used here. It is therefore necessary to propose a new name for the third subgenus.

Only five names are available for eastern Pacific species of *Labrisomus*. Four — *xantusi* Gill, *philippii* Steindachner, *jenkinsi* (Heller & Snodgrass), and *dendriticus* (Reid) — apply to species here regarded as distinct. The fifth, *fortidentatus* (Cope), is probably a synonym of *philippii*. The nine other specific names for eastern Pacific fishes which have been associated with the name *Labrisomus* (in addition to the eight listed by Swainson), I refer to the following genera: *L. afuerae* Hildebrand and *Clinus zonifer* Jordan & Gilbert to *Malacoctenus*; *Clinus niger* Philippi to *Auchenionchus*; *Clinus guttulatus* Cuvier & Valenciennes, *C. crinitus* Jenyns and *Labrisomus coventryi* Fowler to *Myersichthys*; *Labrisomus cremnobates* Gilbert to *Starksia*; *Clinus macrocephalus* Günther to *Mnierpes*; and *Clinus fernandezianus* Guichenot to *Myxodes*.

#### RANGE AND ZOOGEOGRAPHY

The range of the genus extends beyond the eastern Pacific. On the Atlantic coast of the Americas it extends from the vicinity of Rio de Janeiro (Miranda Ribeiro, 1918) to the southern coasts of the United States (Breder, 1929). Records are available from all well-collected continental islands and Bermuda (Beebe & Tee-Van, 1933). One or more species are recorded from the African coast between Dakar and Annobón Island (Steinitz, 1950); as on the American coast, *Labrisomus* specimens have been recorded from many continental islands and the Canaries (Steinitz, 1950). In the eastern



Pacific the genus ranges from the northern part of the Gulf of California and Sebastian Vizcaino Bay, Baja California, to Coquimbo, Chile (Del-fin, 1901).

The stem species of the subtribe Labrisomini is believed to have become distinct from the more temperate stem species of the Calliclinini in tropical American seas. Later two labrisomine species developed, the more primitive giving rise to the genus *Labrisomus* and the more specialized to *Malacoctenus*. The latter is considered the more specialized because of the absence of such typically clinid characters as: small teeth behind the main rows of jaw teeth; the scales on the dorsal and anal fins; and the scales on the upper margin of the opercle. *Labrisomus* are more specialized than *Malacoctenus* only in the frequent absence of long anterior dorsal spines. The fishes of the subgenus *Labrisomus* have no marked primitive characters. The other Pacific subgenera have primitive characters: *Odontoclinus* with elongate first dorsal spines and *Brockius* with a typical clinid posterior lateral line character — a tube with a pore at each end on all lateral line scales posterior to the anterior arc; likewise these subgenera have *Malacoctenus*-like characters: *Odontoclinus* with fewer scales on the head, dorsal fin and anal fin and *Brockius* with large body scales. The determination of the primitive species must be postponed until the Atlantic species are revised.

I believe that *Labrisomus* were widespread in tropical America prior to the elevation of the Isthmus of Panama during the Pliocene. The African *Labrisomus* are believed to descend from one or more successful Atlantic crossings after subgenera were evolved. I can not agree with Steinitz' (1950) conclusion that the African species is a relic of a *Tethys* species and has remained undifferentiated from a single one of the many American species (*nuchipinnis*). Steinitz admits that his results, based on literature alone, are "not quite satisfactory." *Labrisomus canariensis* (Valenciennes) can be distinguished from *L. nuchipinnis* by: one or two instead of ten or more scales on the upper edge of the opercle; a larger patch of palatine teeth; and each nuchal comb of cirri narrower than the interspace. I feel that the African *Labrisomus* descend from random dispersal on the equatorial counter current. It is not surprising that *Labrisomus* have succeeded in colonizing the west coast of Africa because their larval pelagic stages are very extended — the longest of any clinid I know (see below).

The genus occurs in the Tropical Atlanto-East-Pacific Zoogeographic Region of Ekman (1953). Only two species are known to exist outside of the tropics: *L. philippii* in the north-

ern part of the Peruvian-North Chilean Region and *L. canariensis* on the Canaries, which bound the Tropical West-African Region to the north. With these exceptions the known limits of the genus closely follow the limits of the three tropical regions listed above, as for example: *L. pedatipennis* (Rochebrune), which may be a synonym of *L. canariensis*, occurs over most of the Tropical West-African Region; *L. nuchipinnis* (or closely related species) is found from the coasts of central Brazil to the Southern United States; *L. multiporosus* has its southern limit at the southern boundary of the Tropical Pacific-American Region; and *L. xantusi* has its northern limit at the northern boundary of the same region.

The distribution of the specimens examined for this paper is shown on Text-figure 1. The most intensively collected areas are Baja California and the Gulf of California, the Galapagos Islands, Costa Rica and Panama, and Peru. The other regions may have one extensively collected locality, *i.e.*, Acapulco in southern Mexico, but otherwise are basically uncollected. The scarcity of specimens from Costa Rica and Panama is striking when compared with the extensive series of the closely related genus *Paraclinus* collected by William Beebe *et al.* (Hubbs, 1952). Meek & Hildebrand (1928) reported only three Pacific specimens of *Labrisomus* compared with 78 specimens of *Paraclinus monophthalmus*. The marked concentration of abundance at the margins of the tropics may not be repeated in Atlantic waters, as Meek & Hildebrand found *L. nuchipinnis* abundant at their Atlantic stations.

The subdivisions of the Tropical Pacific-American Region proposed in my previous paper (Hubbs, 1952) are only partially supported by *Labrisomus* distributional data. The "two undescribed species" that come into contact in the vicinity of Bahia Honda, Panama, are now believed merely to represent geographic races of *L. multiporosus*. The Panamanian race is probably not subspecifically distinct from the Mexican. The sharp line of demarcation between the Gulf of California and Mexican faunas is not obvious from *Labrisomus* zoogeography. Both *striatus* and *wigginsii* are absent from the Gulf, but the scarcity of specimens of both species leads me to believe that future collecting will extend their ranges. The Gulf species, *xantusi*, is known on the outer coast of Baja California and is the most common *Labrisomus* at the border of the temperate zone. Although *xantusi* is not known on the mainland coast of Mexico south of Mazatlan, I believe that future collections will extend the known range southward. Examination of additional specimens has shown





*porosus*; at Bahia Kino one of the 23 is *multi-porosus*; near Guaymas 65 of the 189 are *multi-porosus*; at Topolebampo the only specimen is *xantusi*; and near Mazatlan 54 of the 65 are *multi-porosus*. The relative abundance of *xantusi* and *multi-porosus* in the Gulf of California north of Mazatlan is rather consistent south of Punta Peñasco, where there is a decided temperature change. This is more evident when a single collection, UCLA W52-12, is excluded from the Guaymas sample, resulting in 22 of the 137 being *multi-porosus*. This collection and others which show a high *multi-porosus* frequency within the sympatric range are from sandy bottom with scattered rocks.

#### LABRISOMUS Swainson

*Labrisomus* Swainson, 1839: 277 (type *Clinus pectinifer* Cuvier & Valenciennes by original designation).

*Lepisoma* DeKay, 1842: 41 (type *Lepisoma cirrhosum* DeKay by monotypy).

*Labrosomus* Gill, 1860: 105 (substitute spelling for *Labrisomus* Swainson, same type).

*Erieteis* Jordan, 1904: 543 (type *Erieteis kalisherae* Jordan by original designation).

*Odontoclinus* Reid, 1935: 164 (type *Odontoclinus dendriticus* Reid by original designation).

Although the following discussion is based on Pacific specimens, all Atlantic specimens which I have examined agree with the description.

Dorsal XVII to XX, 10 to 13 (10 to 12); anal II, 16 to 20 (17 to 20); caudal 11 to 12 (11); pectorals 13 to 16 (13 to 15); pelvics I, 3.

*Scales*.—Lateral line 42 to 74; dorsal posteriorly to lateral line 5 to 30. Head naked (subgenus *Odontoclinus*) or scaled on cheek (*striatus*, *socorroensis* and *philippii*) and dorsal part of opercle (*Labrisomus* and *Brockius*). Patch of scales on each membrane behind the first to fifth dorsal spines (except *dendriticus*, with the dorsal naked except between the seventeenth spine and fourth soft ray). Anal naked (*Odontoclinus*) to scaled on all membranes (*socorroensis*). Proximal part of caudal scaled. Pectorals naked (*dendriticus*) or proximal base scaled. Pelvics naked. Pectoral base heavily scaled. Pelvic base naked between and behind fins. Smaller scales on belly in all species except *striatus*. Midline at nape naked (*Odontoclinus*) or scaled. Twelve to 20 radii on posterior surface of body scales of adult. Scales form toward the end of the postlarval stage, first on middle of side anteriorly and then ventrally, dorsally and posteriorly.

*Teeth*.—Premaxillaries and mandibles with an

outer row of enlarged conical teeth enclosing an inner band of smaller teeth. The band is more extensive on the upper jaw; posterior enlarged teeth occur only in *dendriticus*. Vomerine teeth present. Palatines toothed or not.

*Gill-rakers*.—2 to 4 + 6 to 9, those on the upper arch short and frequently branched, those on lower arch longer and simpler.

*Lateral Line*.—The main canal runs posteriorly to a point approximately above the anus, drops gently to the midline, on which it extends to the caudal fin. The scales on the anterior arc bear two external pores on their posterior surfaces, one on each side of the canal, and an anterior pore that lies beneath the preceding scale. A varying number of the scales on the posterior straight segment resemble anterior scales; the remainder have a canal with a pore at each end. In postlarvae the posterior scales bear a simple pore in the scale center. The head canals are typical with varying numbers of pores on branch canals. There is always a branch of the preopercular canal at the middle of the opercle extending onto the opercle. There are many side branches to the suborbital canal.

*Fins*.—The fourth and fifth dorsal spines may be much shorter than those anteriorly and posteriorly. There is a more or less noticeable indentation at the next-to-last spine. The soft rays are markedly longer than most spines (the first and second spines of *dendriticus* approximate the soft ray length). The soft rays are closer together than the spines, which are farthest apart anteriorly.

Caudal rounded. Its length equals the distance between the bases of the first and seventh to tenth dorsal spines.

The first anal spine is contained from 1.2 to 1.5 and 2.0 to 2.6 times in the second spine and first soft ray respectively. The soft ray lengths remain equal or gradually increase as far as the twelfth, then become greater for about three or four rays; the last two or three are noticeably shorter. The last ray is not bound to the caudal peduncle by a membrane.

The longest ray of the pointed pectorals reaches a point above the first four anal soft rays.

The pelvic spine is splinted to the first soft ray. The second soft ray, the longest, does not extend posterior to the anus. The first and third soft rays are approximately equal in length. The third is thinner than the first and second. The membrane between the first two soft rays is deeply incised, that between the second and third soft rays scarcely incised.

*Head*.—Contained 2.8 to 3.4 times in the standard length. The mouth is terminal but below the midline. The thick lips vary from half of to equal to the suborbital. The slightly de-

curved mouth reaches a point below the eye. Round eye at or near the dorsal profile. Preopercle and opercle rounded and entire. Six branchiostegal rays.

*Profile*.—The profile is straight or slightly concave as it rises steeply to the eye (more so in large specimens). After following the dorsal rim of the orbit more or less closely, it straightens and rises gently to the occiput, where it becomes convex and rises rather steeply to the first dorsal spine, where it straightens and rises more gently to about the fifth spine (the region of greatest body depth). The profile drops evenly and gently along the posterior dorsal spines and more steeply along the dorsal soft rays to the horizontal caudal peduncle. The peduncle depth and length are both approximately one-tenth of the standard length.

*Cirri*.—Three pairs of cirri are present on the head: nuchal, supra-orbital and narial. The latter two arise from single rounded stalks and have many more or less equal branches. The nuchal patch is comb-like.

*Colors*.—Similar to most clinids, the life colors of this genus are variable both inter- and intraspecifically. With few exceptions melanin pigment forms the major element of the color pattern.

*Habitat*.—All species for which adequate collection data are available live on rocky bottom. All Pacific species except *L. striatus* are intertidal.

#### NONGENETIC INTRASPECIFIC VARIATION

All species of *Labrisomus* for which adequate data are available show considerable nongenetic variation. This variation is of two types: variation of proportional lengths with age and color variation with the habitat.

The marked change in proportional length of *L. philippii* shown by Evermann & Radcliffe (1917: pl. 13, fig. 1) has been found in all species for which I have an adequate size range (*xantusi*, *multiporosus*, *dendriticus* and *nuchipinnis*). The specimens examined of the remaining species cover too narrow a size range to determine without doubt if they exhibit the same phenomenon; however, all available data indicate parallel changes. The head length does not vary noticeably with age, but that of the male averages longer than that of the female. Similar to other clinids the upper jaw length becomes greater with age, most markedly in males. As in most fishes the eye becomes proportionally smaller with age. Correlated with this change, all measurements based on a rim of the orbit become greater with age. The proportional fin ray lengths become slightly smaller with age. The number of branches of the cirri

on the head increases with age; however, the proportional width of the base of the nuchal cirri remains constant in all species except *L. philippii*. The number of scales on the head and fins increases with age. The number of teeth on the roof of the mouth increases with size. The most marked change of all is the increase of the relative depth of the body anteriorly compared with the depth posteriorly.

The variation of color pattern with habitat exhibited by most clinids is repeated by *Labrisomus* specimens. The patterns given in the following descriptions are the most distinct available. In each species except *striatus* and *wigginsii*, specimens with an almost uniformly plain color pattern have been examined. All intermediate stages between the plain and very distinct color phases are available on specimens of *xantusi*, *multiporosus* and *nuchipinnis*. Although the scarcity of specimens of *striatus*, *wigginsii*, *dendriticus*, *jenkinsii*, *philippii* and *socorroensis* hinders the determination of the limits of the color variation within these species, it is probable that color variations similar to those found in *xantusi*, etc., occur. The series of each species examined indicates that all species may have a plain color phase. It is also probable that future collections will contain *dendriticus*, *jenkinsii* and *philippii* specimens which have more distinct color patterns than those described.

#### POSTLARVAE

Pelagic postlarvae of *Labrisomus* have been collected frequently under night lights in the eastern tropical Pacific. Although the postlarvae of only two species (*dendriticus* and *multiporosus*) have been identified in night light collections, the remaining six species probably have pelagic postlarvae. The postlarvae of *xantusi* very probably are present in existing collections, but the close similarity of *xantusi* and *multiporosus* makes it difficult to ascertain whether postlarvae of both occur under the night lights in their sympatric range. The wide size variation of *Labrisomus* postlarvae from the Gulf of California and Baja California collections strongly indicates that more than one species is represented, as *L. dendriticus* postlarval collections are of a very uniform size range. Postlarvae of *multiporosus* have been taken far to the south of the range of *xantusi*. A single transforming postlarva of *wigginsii* was collected from a tidal pool.

The most complete *Labrisomus* postlarval collections are those of *L. dendriticus* from the Galapagos. Of the 99 *dendriticus* specimens I have examined, 92 are postlarvae. All 92 were collected between April 15 and June 9. Each sample includes specimens of approximately



equal size — the largest sample, taken on May 21, 1932 (32 specimens), varies from 21 to 24.5 mm standard length. The April samples (12 specimens) vary from 19 to 22.5 mm. As the January collections, which contain the smallest transformed individuals (all three ca. 35 mm), are not accompanied by postlarvae, it is probable that *L. dendriticus* spawns annually in March. In any case *L. dendriticus* postlarvae are in a pelagic stage from the middle of April to the first weeks of June. Parallel evidence is available for *L. multiporosus*; however, the postlarval collections are scattered geographically and many of the collections are from within its sympatric range with *L. xantusi*, from which *L. multiporosus* postlarvae have not been distinguished. The long pelagic stage helps to explain the presence of *Labrisomus* species far from the center of labrisomine origin (Central America) on coasts where they are the only known members of the Labrisominae.

I believe that the postlarval stage of other clinids is shorter than that of *Labrisomus*. I have examined postlarvae of only four genera: *Gibbonsia*, *Cryptotrema*, *Alloclinus* and *Malacoctenus*. As *Gibbonsia* postlarvae are more frequently collected intertidally than pelagically, I believe that *Gibbonsia* species do not disseminate widely while postlarvae. *Cryptotrema* and *Alloclinus* postlarvae (and adults) are too rare to show detailed distributional trends. With the exception of the Galapagos endemic, *M. zongaster*, *Malacoctenus* postlarvae are extremely rare (I have examined one specimen). The presence of *zongaster* on the Galapagos may have resulted from its ancestors' possession of a longer pelagic stage than other species of *Malacoctenus*.

KEY TO EASTERN PACIFIC SPECIES

- 1a. Lateral line scales fewer than 45; scales on posterior segment of lateral line with a pore at anterior end of exposed area; membranes between anterior dorsal spines deeply incised (one-half of following spine length); last dorsal ray almost free from caudal peduncle; narial cirri length about 1.5 in opercle; body speckled with dark spots arranged in irregular stripes; body scales with light central marks forming longitudinal stripes. . . . . *L. (Brockius) striatus*
- 1b. Lateral line scales more than 57; more than three-fourths of the scales on posterior segment of lateral line with anterior pore covered by preceding scale; membranes between anterior dorsal spines slightly incised (one-fourth or less of following spine length); last dorsal ray bound down for three-fourths or more of its length by a membrane which is attached to the caudal peduncle; narial cirri length about 3.0 in opercle; body color pattern typically barred and never having alternating light and dark fine stripes . . . . . 2
- 2a. First dorsal spine longer than opercle length; major indentation of dorsal outline at fourth to fifth spines (another may be present at posterior end of dorsal spines); head naked; anal naked. . . . . ( *Odontoclinus* ) 3
- 3a. Dorsal spines 17 to 18; anal soft rays 16 to 17; pectoral rays 14 to 15 (15); scale radii about 13; vomerine and palatine teeth equally large; no enlarged canines behind patch of small teeth on jaws; nuchal cirri length equal to opercle length; first dorsal spine distinctly shorter than dorsal soft rays . . . . . *L. (Odontoclinus) wigginsi*
- 3b. Dorsal spines 20; anal soft rays 19 to 20; pectoral rays 13; scale radii about 20; palatine teeth larger than vomerine teeth; an enlarged canine behind patch of small teeth on each side of each jaw; nuchal cirri length approximately half opercle length; first dorsal spine longer than, or equal to, the dorsal soft rays . . . . . *L. (Odontoclinus) dendriticus*
- 2b. First dorsal spine shorter than opercle length; major indentation of dorsal outline (if present) at posterior end of dorsal spines; at least a few scales at upper margin of opercle; small patch of scales on membranes in front of posterior anal rays . . . . . ( *Labrisomus* ) 4
- 4a. Fewer than 63 lateral line scales; caudal peduncle depth more than 9.1% of standard length . . . . . *L. (Labrisomus) jenkinsi*
- 4b. More than 63 lateral line scales; caudal peduncle depth less than 9.1% of standard length (except in *L. philippii*) . . . . . 5
- 5a. Fifteen to 16 pectoral rays; lateral line scales 70 to 74 (rarely 68 and 69); tenth dorsal spine less than 10% of standard length; width of nape cirrus less than 3.8% of standard length; caudal peduncle depth more than 9.1% of standard length; cirri short, all less than one-half of opercle length . . . . . *L. (Labrisomus) philippii*



- 5b. Fourteen (rarely 13 and 15) pectoral rays; lateral line scales 64 to 68 (rarely 69); tenth dorsal spine more than 10% of standard length; width of nape cirrus more than 3.6% of standard length (except in *L. xantusi* with 2.4 to 3.6%); caudal peduncle depth less than 9.1% of standard length; cirri longer, supra-orbital and nuchal more than one-half of opercle length . . . . . 6
- 6a. Many scales on cheek and along entire dorsal part of opercle . . . *L. (Labrisomus) socorroensis*
- 6b. Cheeks naked and fewer than 30 scales in patch on upper margin of opercle . . 7\*
- 7a. Few lateral line pores on head: branch of pre-opercular canal at middle of opercle extends less than one-fourth the distance across the opercle (normally three or fewer pores arise from this branch), no pores posteroventral to opercular scale patch, branch of suborbital canal reaches half way to tip of maxillary, major part of occipital region with no pores; no palatine teeth; more than ten scales in opercular scale patch . . *L. (Labrisomus) xantusi*
- 7b. Many lateral line pores on head: branch of pre-opercular canal at middle of opercle extends to midpoint of opercle (normally five or more pores arise from this branch), a few pores posteroventral to opercular scale patch, branch of suborbital canal reaches region of tip of maxillary, all parts of occipital region with pores; palatine teeth pres-

ent; fewer than ten scales in opercular scale patch .  
*L. (Labrisomus) multiporosus*

BROCKIUS, new subgenus

*Ericteis* Hubbs, 1952: 105 (not of Jordan, 1904).

The eastern Pacific *Labrisomus* which I considered to belong in *Ericteis* is now considered to be the type of a distinct subgenus. *Brockius* and *Ericteis* can be distinguished by the former having: larger scales (42 to 44 versus 49 to 52 in the lateral line), deep incisions between the dorsal spines, and the striped color pattern.

Specimens of *Brockius* can be separated from those of all other eastern Pacific *Labrisomus* by the above key. A more detailed description is included under the discussion of the type (and only known) species, *Labrisomus (Brockius) striatus*.

Named *Brockius* in honor of Mr. Vernon E. Brock, who first collected specimens of the type species and developed a collecting technique satisfactory to sample its habitat.

LABRISOMUS (BROCKIUS) STRIATUS, new species

Text-fig. 2

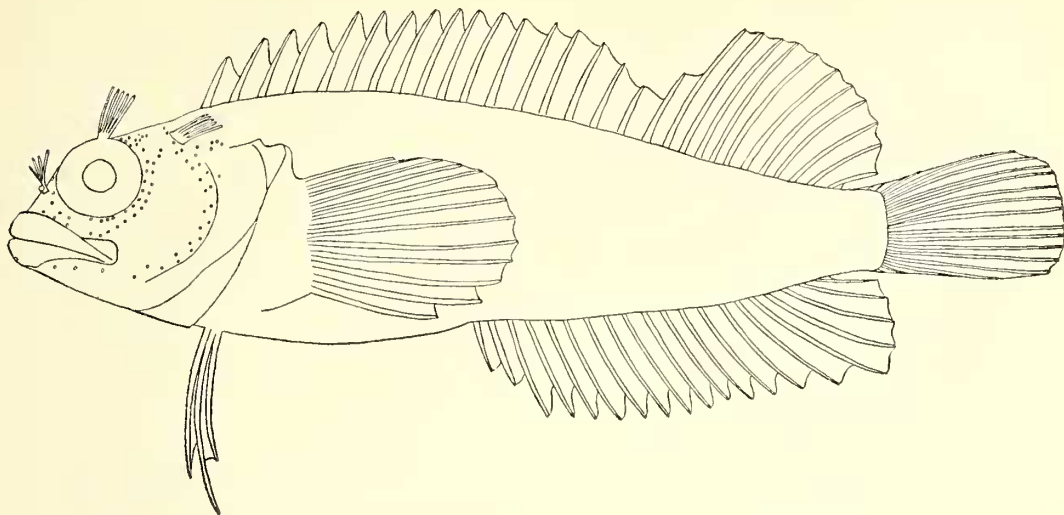
*Labrisomus (Ericteis)* species Hubbs, 1952: 105 (range).

*Diagnosis.*—This species differs from all other *Labrisomus* species by having: fewer than 45 lateral line scales; all lateral line scales posterior to the anterior arc different from those on the anterior arc; and a striped color pattern. *Labrisomus striatus* differs from both *L. dendriticus* and *L. wigginsii* by having the first dorsal spines shorter than those immediately posterior. *L. striatus* differs from all Pacific species except *L. socorroensis* and *L. philippii* by having scales on the cheek; the cheek scales of the latter two species differ in being more numerous. The narial cirri of *L. striatus* are far longer than those of other *Labrisomus* species.

Dorsal XVIII, 10; anal II, 17; pectorals 13.

*Scales.*—Lateral line 42 to 44; dorsal posteriorly to lateral line five to six. Two or three scales imbricate on upper margin of opercle and two or three on upper cheek. A small patch imbedded on the membrane in front of all dorsal rays posterior to the fifth spine. A similar patch in front of the fourteenth to sixteenth anal soft rays. Imbricate scales on proximal one-fourth of caudal. Small imbricate scales on proximal one-sixth of pectoral. Pelvics naked. About four rows of large scales on pectoral base. Pelvic base scaled except between fins. Belly scales not reduced. Two to three rows of large scales on

\* *L. nuchipinnis* and *canariensis*, which key to this point, can be distinguished from *L. xantusi* and *L. multiporosus* by the dark ocellus on the opercle of the Atlantic species. *L. nuchipinnis* also has the branch of the pre-opercular canal at middle of opercle extending to midpoint of opercle and no pores posteroventral to the opercular scale patch.



TEXT-FIG. 2. *Labrisomus (Brockius) striatus*, 39 mm, from TNHC 2961.

midline of nape. About 12 radii on posterior surface of body scales.

*Teeth.*—No enlarged teeth behind patch of small teeth on jaws. The vomer has a row of small teeth. The palatine is naked.

*Gill-rakers.*—4 + 9, all branched, third on lower arch reaches half-way between base of fourth and fifth.

*Lateral Line.*—Each scale on the posterior straight segment has a tube with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle barely extends onto the opercle. There are no pores posteroventral to the opercular scale patch. The pores from the suborbital canal cover one-fifth of the cheek and reach half way to the tip of the maxillary. The occipital region has a few scattered pores, but no pronounced clear area.

*Fins.*—The first dorsal spine short; approximately equal to the opercle length. Following spines longer as far as fourteenth. Spine length shortens to next-to-last, which is shorter than first spine. Last spine one and one-half times next-to-last. Anterior soft rays about one and one-half times longest spines. Second to sixth soft rays slightly longer, following rays shorter, their margins forming rounded fin. The first spine originates over the opercle; the first soft ray over the middle of the anal fin. The anterior dorsal membranes are incised one-half and the posterior membranes scarcely incised. The last soft ray is barely bound to the caudal peduncle by a membrane.

Caudal length equals the distance between the bases of the first and eighth dorsal spines.

The first anal spine is contained 1.2 and 2.0

times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the second or third anal soft ray.

The third pelvic soft ray is slightly shorter than the first.

*Head.*—The lip is contained 1.2 times in the suborbital. The jaw extends to a point below the middle of the eye.

*Cirri.*—The narial, supra-orbital and nuchal cirri are contained 1.5, 1.0 and 1.25 times respectively in the opercle length.

*Color.*—The body is speckled with dark spots arranged in irregular stripes. The intervening light marks in the centers of the scales form light stripes. The breast is lighter. The head has a prominent double dark stripe from the eye to the angle of the pre-opercle. The dorsal spines and soft rays have alternating dark and light marks which form anterodorsal-posteroventral markings. Anal marking similar but anteroventral-posterodorsal. Caudal markings similar but in cross-hatched pattern. The paired fins are like the breast except for a pronounced dark bar at the outer edge of the pectoral scaled area. A continuation of the pectoral bar may be found on the branchiostegal membranes.

*Habitat.*—This species inhabits rocky bottom slightly below the low tide line.

*Range.*—This species has been taken at Cape San Lucas, Las Tres Marias Islands and Acapulco. I believe that it will be found to be abundant when its habitat is more extensively collected.

*Material.*—The holotype (SU 17560) was col-

lected by Carl L. Hubbs on October 4, 1946, in Acapulco Harbor, during the Flynn "Zaca" Expedition. Seven paratypes were also examined: two (TNHC 2961 and USNM 165472) were collected in the vicinity of Acapulco during the same expedition; three (SU 17559) were collected by Vernon E. Brock on February 23, 1940, on Cleopha Island in Las Tres Marias Islands, Mexico; and two (SU 17608) were collected by James E. Böhlke and party from the yacht "Orca" on May 20, 1952, in San Lucas Bay.

Named *striatus* from the Latin *striatus* = striped, for the striped color phase.

#### Subgenus ODONTOCLINUS Reid

*Odontoclinus* Reid, 1935: 164 (type *Odontoclinus dendriticus* Reid by original designation).

This group of fishes can be separated from all other members of *Labrisomus* by the elongate first dorsal spines, reduced number of scales on the head, fins and nape. Although these characters are more typical of *Malacoctenus* species than *Labrisomus*, other characters typical of *Odontoclinus* readily separate the members of *Odontoclinus* from those of *Malacoctenus*. These are: longer upper jaw; a band of small teeth behind the primary row of jaw teeth; smaller scales; more rounded head; and scales on the pectoral fin and pelvic base.

LABRISOMUS (ODONTOCLINUS) WIGGINSI,  
new species

Text-fig. 3

*Labrisomus* (*Labrisomus*) species Hubbs, 1952:  
105 (range).

*Diagnosis.*—This species differs from all other *Labrisomus* species except *L. dendriticus* by having: the anterior dorsal spines much longer than those immediately posterior and the head and anal fins naked. *Labrisomus wigginsii* differs from *L. dendriticus* by having: fewer than 19 dorsal spines; fewer than 18 anal soft rays; 14 or more pectoral rays; the vomerine teeth as large as the palatine teeth; no enlarged canines posterior to the patch of small jaw teeth; the nuchal cirri length approximately equal the opercle length; and the first dorsal spine shorter than the dorsal soft rays.

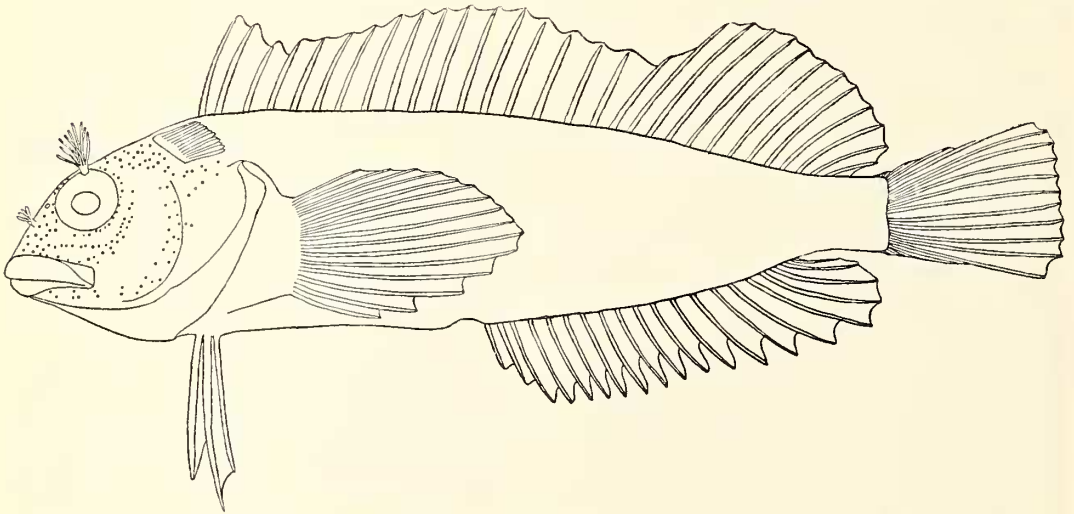
Dorsal XVII to XVIII (XVIII), 10 to 12 (11); anal II, 16 to 17 (17); pectorals 14 to 15 (15).

*Scales.*—Lateral line 60 to 64 (61 to 64); dorsal posteriorly to lateral line 14 to 23. Head naked. Small patch of scales imbedded on membrane in front of all dorsal rays behind fourth spine. Anal naked. Imbedded scales on proximal one-eighth of caudal. Imbedded scales on proximal one-sixth of pectorals. Midline at nape naked. Belly scales reduced in size. Approximately 13 radii on posterior margin of body scales.

*Teeth.*—No enlarged teeth behind band of small teeth on jaws. A row of small teeth on vomer. A patch of small teeth on palatines.

*Gill-rakers.*—3 + 6, all entire, third on lower arch reaches base of fourth.

*Lateral Line.*—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends one-fifth of the distance across the opercle. Pores cover upper margin of



TEXT-FIG 3. *Labrisomus* (*Odontoclinus*) *wigginsii*, 45 mm, from TNHC 2960.



opercle in region where scale patch occurs in other species. The suborbital branches extend one-fourth of the distance across the cheek and to a point one maxillary width from the tip of the maxillary. The occipital region has a large central region with no pores.

*Fins.*—First dorsal spine long; more than one and one-half of opercle length. The spine length decreases to the third and fourth, which are contained one and one-half times in first spine. The following spines are longer to the thirteenth, which equals the first. The spine length then decreases again to the next-to-last, which is contained one and one-fourth times in the first. The anterior five soft rays are one and one-half times the first spine; behind these the ray length decreases rapidly. The first spine originates above the middle of the opercle; the first soft ray above the middle of the anal. The membranes are slightly incised, and the last ray is attached for three-fourths of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and eighth dorsal spines.

The first anal spine is contained 1.4 and 2.1 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the second anal soft ray.

The third pelvic soft ray is as long as the first.

*Head.*—The lip is contained 1.2 times in the suborbital. The upper jaw extends to a point below the middle of the eye.

*Cirri.*—The length of the narial cirri is contained three times in the opercle length; that of the supra-orbital and nuchal cirri equal the opercle length.

*Color.*—The body has four distinct dark bars at the base of the fifth, fourteenth, last dorsal spine and eighth soft ray. Five less distinct bars occur between each of the above and anterior and posterior to them. The posterior bars are nearly complete. Those above the belly are interrupted and continued below by intermediate bars. A dark ocellus between the anterior two bars is the most obvious color mark. All nine body bars continue across the dorsal with intervening speckling. The dorsal scale patches between the bars have the body ground color. The membranes between the bars are clear distal to the scale patches. The anal has seven alternating light and dark bars which are not strongly correlated with the body bars. The caudal has a light tear-drop-shaped spot at the central base behind the dark body color. Other light marks occur on the margins of the dusky caudal. The paired fins are dusky except for the dark bar,

most pronounced ventrally, at the base of the pectoral. The head is mottled.

*Range.*—This species has been collected from tidepools on the outer coast of Baja California between Arroyo Seco and Abreojos Point.

*Material.*—The holotype (SU 17562) was collected by Ira L. Wiggins and party on November 27, 1946, from a tidepool three miles north of Arroyo Seco, half way between Magdalena Bay and Cape San Lucas. Twenty paratypes were also examined: twelve (SU 17563) were collected with the holotype; one postlarva (SU 17561) was collected from a tidepool near the mouth of the Estero de la Purissima by Wiggins and party; two (TNHC 2960) were collected by Laura C. Hubbs and party from the west end of Ballenas Bay; and five (USNM 165473) were collected by Carl L. Hubbs and party from Punta Abreojos.

Named *wigginsii* for Dr. Ira L. Wiggins, who first collected this species.

LABRISOMUS (ODONTOCLINUS) DENDRITICUS  
(Reid)

Text-figs. 4 & 5

*Odontoclinus dendriticus* Reid, 1935: 165 (new description, range, figure).

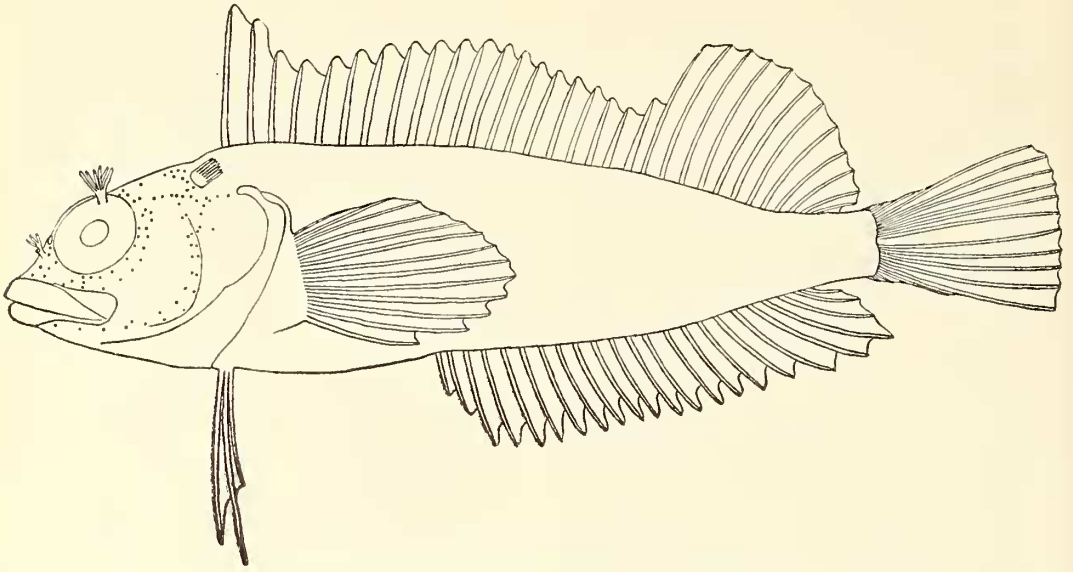
*Labrisomus (Odontoclinus) dendriticus* Hubbs, 1952: 106 (range).

*Diagnostic Characters of the Species.*—This species differs from all other *Labrisomus* species except *L. wigginsii* by having: the anterior dorsal spines much longer than those immediately posterior and the head and anal fins naked. *Labrisomus dendriticus* differs from *L. wigginsii* by having: more than 19 dorsal spines; more than 18 anal soft rays; its palatine teeth larger than its vomerine teeth; its nuchal cirri approximately half the opercle length. *L. dendriticus* differs from all other *Labrisomus* species by having: an enlarged canine behind each patch of small jaw teeth; the first dorsal spine longer than or equal to the dorsal soft rays; and 13 pectoral rays.

Dorsal XX, 10 to 12 (11 to 12); anal II, 19 to 20 (20); pectorals 13.

*Scales.*—Lateral line 59 to 65 (62 to 64); dorsal posteriorly to lateral line 6 to 7. Head naked. A few scales on membranes in front of last two dorsal spines and first four soft rays. Anal naked. Proximal one-sixth of caudal scaled. Pectoral naked. Belly scales reduced in size. Midline at nape naked. About 20 radii on posterior margin of body scales.

*Teeth.*—One enlarged canine behind the patch of smaller teeth on each side of both jaws. A row of small teeth on vomer. A patch of large teeth on palatines.



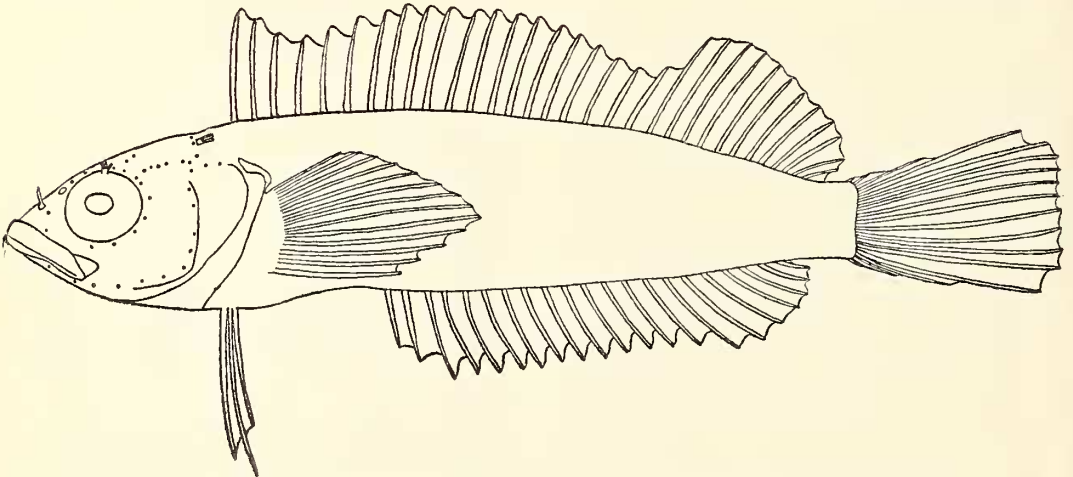
TEXT-FIG. 4. *Labrisomus (Odontoclinus) dendriticus*, 36 mm, from SU 37587.

*Gill-rakers.*—3 + 8, all entire, third on lower arch reaches base of fourth.

*Lateral Line.*—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior four or five have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends two-sevenths of the distance across the opercle. No pores posteroventral to the region where the opercular scale patch occurs in other species. The suborbital branches extend two-sevenths of the distance across the

cheek and half way to the tip of the maxillary. The occipital region has scattered pores.

*Fins.*—First dorsal spine long, two and one-half times opercle length in adults and two times opercle length in young. The spine length decreases to the fourth or fifth, which is contained 1.9 times in the first spine. The following spines are longer to the thirteenth, contained 1.6 times in the first. The spine length then decreases to the next-to-last, contained 2.3 to 2.6 times in the first. The last spine is slightly longer than the preceding. The first soft ray is equal to, or slightly shorter than, the first spine; the next



TEXT-FIG. 5. *Labrisomus (Odontoclinus) dendriticus*, 23 mm, from TNHC 2969.



five slightly longer. The following rays are all shorter. The first spine originates above the midpoint of the opercle; the first soft ray behind the midpoint of the anal. The membranes are slightly incised, and the last ray is attached for three-fourths of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and eighth to tenth spines.

The first anal spine is contained 1.2 and 2.4 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the fourth anal soft ray.

The third pelvic soft ray is shorter than the first.

*Head*.—The lip equals or exceeds the suborbital. The upper jaw extends to a point below the middle of the eye.

*Cirri*.—The length of the narial cirri is contained 3.2 times in the opercle length; that of the supra-orbital 1.5 and of the nuchal 1.8 times.

*Color*.—The body is dusky with no markings. The head has a dark spot on the lower part of the opercle and a dark chin. The dorsal and caudal are dusky. The anal is dusky with a lighter area proximally. The paired fins are dusky with a bar at the pectoral base.

*Range*.—The Galapagos Islands.

*Material*.—The holotype (USNM 43397) from Albemarle Island and the paratype (USNM 94033) from Charles Island were examined. Ninety-seven other specimens were also examined: one adult (CAS 6042) and 63 postlarvae (CAS 20634, 20635, 20636, 20637, 20638, 20639, 20641 and 20643, NYZS 6263 and TNHC 2969) from Albemarle Island; ten postlarvae (CAS 20640) from the channel between Albemarle and Narborough Islands; six postlarvae (CAS 20642) from Narborough Island; one adult (CAS 6043) from James Island; two immature specimens (SU 37589) from Indefatigable Island; one immature specimen (SU 37587) from Tower Island; five postlarvae (CAS 20632 and 20633) from Charles Island; and eight postlarvae (TNHC 2967) from Hood Island.

Named *dendriticus* from the Greek δένδριτυς = tree-like, for the cirri.

#### Subgenus *LABRISOMUS* Swainson

*Labrisomus* Swainson, 1839: 277 (type *Clinus pectinifer* Cuvier & Valenciennes by original designation).

*Lepisoma* DeKay, 1842: 41 (type *Lepisoma cirrhosum* DeKay by monotypy).

*Labrosomus* Gill, 1860: 105 (substitute spelling for *Labrisomus* Swainson, same type).

The members of the subgenus *Labrisomus* can be distinguished from the members of the other two Pacific subgenera, *Odontoclinus* and *Brockius*, by the above key. They can be separated from the members of the Atlantic species *kalisheræ*, which may belong to a distinct subgenus (*Ericteis*), by the smaller scales of the former (63 or more).

At least two Atlantic species, *nuchipinnis* and *canariensis*, belong to the subgenus *Labrisomus*.

#### *LABRISOMUS (LABRISOMUS) JENKINSI*

(Heller & Snodgrass)

Text-fig. 6

*Lepisoma jenkinsi* Heller & Snodgrass, 1903: 219 (new description, figure, and range); Snodgrass & Heller, 1905: 420 (synonymy and range); Evermann & Radcliffe, 1907: 145 (compared with *L. philippii*).

*Labrisomus jenkinsi* Kendall & Radcliffe, 1912: 152 (range, vague description).

*Labrisomus (Labrisomus) jenkinsi* Hubbs, 1952: 105 (range).

*Diagnostic Characters of the Species*.—This species differs from *L. striatus* by having: more than 57 lateral line scales; some of the scales posterior to the anterior arc similar to those on the anterior arc; and a barred color pattern. *Labrisomus jenkinsi* differs from *L. wigginsi* and *L. dendriticus* by having: the anterior dorsal spines approximately equal to those immediately posterior and scales on the head and anal fin membranes. *L. jenkinsi*, *L. wigginsi* and *L. dendriticus* have a similar number of lateral line scales, 58-64; more than *L. striatus* and *L. kalisheræ*, and fewer than *L. nuchipinnis*, *L. canariensis*, *L. socorroensis*, *L. philippii*, *L. xantusi* and *L. multiporosus*. The pronounced increase in relative depth anteriorly in *L. jenkinsi* is exceeded only by that of *L. philippii* and approached only by *L. xantusi*.

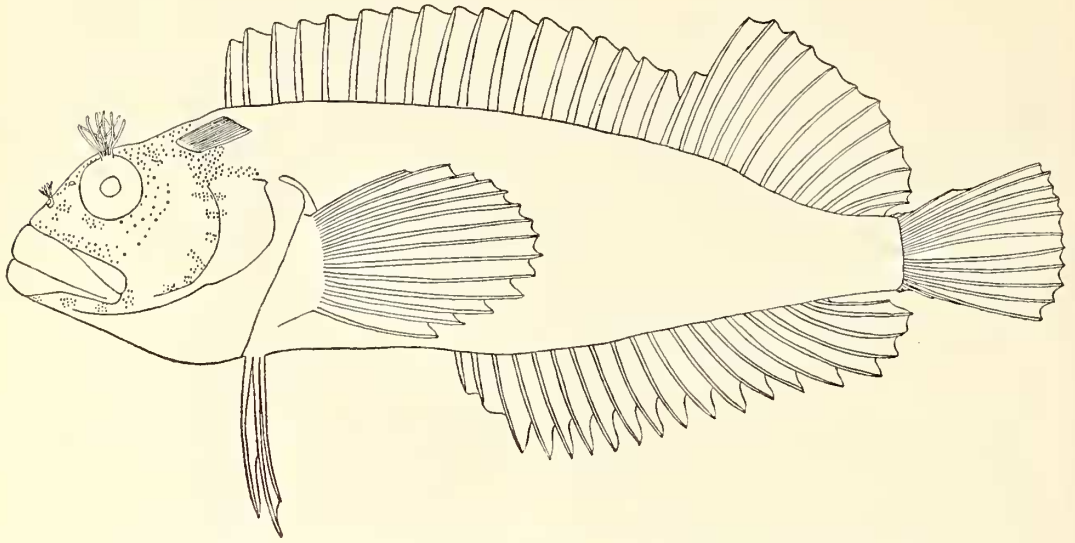
Dorsal XVIII to XIX, 10 to 11; anal II, 17; pectorals 14 to 15 (14).

*Scales*.—Lateral line 58 to 62; dorsal posteriorly to lateral line 16. A few small imbricate scales along upper edge of opercle. Scales on membranes in front of each dorsal ray behind the third spine. A similar patch in front of all anal rays behind the eighth soft ray. Proximal third of caudal scaled. Proximal seventh of pectoral scaled. Belly scales reduced in size. About six predorsal scale rows. About 20 radii on posterior margin of body scales.

*Teeth*.—No enlarged canines behind the patch of smaller jaw teeth. A row of large teeth on vomer extends onto anterior part of palatines.

*Gill-rakers*.—3 (branched) + 8, third on lower arch reaches base of fifth.





TEXT-FIG. 6. *Labrisomus (Labrisomus) jenkinsi*, 93 mm, from CAS 4074.

*Lateral Line.*—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends one-fifth of the distance across the opercle. No pores posteroventral to the opercular scale patch. The suborbital branches extend one-third to one-fourth of the distance across the cheek and nearly to the tip of the maxillary. The occipital region has many pores.

*Fins.*—First dorsal spine moderate, slightly longer than opercle length. After increasing to the thirteenth spine, the spine length decreases to the next-to-last, which is slightly longer than the first. The first soft ray is one and one-half times the longest spine; the next two slightly longer and the remaining ones shorter. The first spine originates above the front of the opercle; the first soft ray originates just behind the middle of the anal. The membranes are slightly incised, and the last ray is attached for three-fourths of its length to a membrane which is bound to the caudal peduncle.

The caudal length equals the distance between the bases of the first and seventh dorsal spines.

The first anal spine is contained 1.2 and 2.5 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the third anal soft ray.

The third pelvic soft ray is slightly shorter than the first.

*Head.*—The lip is contained 1.2 times in the suborbital. The upper jaw extends to a point below the middle of the eye.

*Cirri.*—The length of the narial cirri is contained 2.8 times in the opercle length; that of the supra-orbital and nuchal equal the opercle length.

*Color.*—The body is dark with mottling more pronounced than barring. The head is spotted with a bar behind the eye. An ocellus is present on the membrane between the second and third dorsal spines. Except for the ocellus the dorsal, pelvics and caudal are dusky. The anal is dusky with a superimposed striping. The pectoral rays are spotted and the basal bar is faint.

*Range.*—The Galapagos Islands.

*Material.*—The holotype (SU 6350) and two paratypes (SU 8655), collected by Robert E. Snodgrass and Edmund Heller from Iguana Cove, Albemarle Island, were examined. Two other specimens were also examined: one (CAS 4074) from Narborough Island; and one (USNM 65556) from Chatham Island.

Named *jenkinsi* in honor of Dr. Oliver P. Jenkins.

#### LABRISOMUS (LABRISOMUS) PHILIPPII Steindachner

*Labrisomus philippii* Steindachner, 1866: 3 (new description and range); Hildebrand, 1946: 396 (description, synonymy and range).

*Labrisomus philippi* Abbott, 1899: 361 (synonymy, food habits: fish, molluscs, sea urchins, crustaceans); Starks, 1906: 800 (descrip-

tion); Fowler, 1940b: 794 (several doubtful localities); 1944: 521 (range: Chile to Peru); 1945: 280 (synonymy and range).

*Clinus Philippii* Delfin, 1901: 94 (synonymy and range).

*Clinus (Labrisomus) philippi* Steindachner, 1902: 130 (description and range).

*Lepisoma philippi* Evermann & Radcliffe, 1917: 144 (description, range and comparison with *jenkinsi*, and *xanti* = *xantusi* and *multi-porosus*).

*Labrisomus (Labrisomus) philippii* Hubbs, 1952: 105 (range).

*Clinus fortidentatus* Cope, 1877: 42 (new description, Callao Bay).

**Diagnostic Characters of the Species.**—This species differs from all other *Labrisomus* species except *L. wigginsi* by having more than 14 pectoral rays. It has more lateral line scales than other species of *Labrisomus* (usually 70 to 74). The cirri of *L. philippii* are shorter than those of all other *Labrisomus* species; all cirri are less than one-half of opercle length, while only *L. dendriticus* has either supra-orbital or nuchal cirri less than one opercle length. *Labrisomus philippii* has approximately 30 scale rows from the first dorsal spine posteriorly to the lateral line; all other *Labrisomus* species have about 20 or fewer.

Dorsal XIX to XX (XIX), 11 to 13 (12); anal II, 17 to 19 (19); pectorals 14 to 16 (15).

**Scales.**—Lateral line 68 to 74 (71 to 73); dorsal posteriorly to lateral line 20 to 30. The patch of scales on the cheek posterodorsal to a line from the eye to the corner of the pre-opercle is present or absent. The patch on the upper margin of the opercle is well developed. Scales on all membranes in front of each dorsal ray behind the second spine. A similar patch in front of all anal rays behind the second spine. Proximal half of caudal scaled. Proximal two-fifths of pectorals scaled. Belly scales reduced in size. From eight to ten predorsal scale rows. About 16 radii on posterior margin of body scales.

**Teeth.**—No enlarged canines behind patch of smaller jaw teeth. A row of middle-sized teeth followed by a patch of small teeth on vomer. A patch of small teeth on palatines.

**Gill-rakers.**—4 + 8, third to eighth on lower arch simple, rest branched, third on lower arch reaches base of fourth.

**Lateral Line.**—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a

canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends one-third of the distance across the opercle. No pores posteroventral to the opercular scale patch. The suborbital branches extend one-third of the distance across the cheek and to the tip of the maxillary. The occipital region has many pores.

**Fins.**—First dorsal spine short, equal to opercle length. The spine length increases to the fourteenth. The following spines are shorter to the next-to-last, which is equal to the first. The first seven soft rays are about one and one-half times as long as the longest spine; the others are progressively shorter. The first spine originates above the posterior margin of the pre-opercle; the first soft ray just behind the middle of the anal. The membranes are slightly incised, and the last ray is attached for two-fifths of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and seventh dorsal spines.

The first anal spine is contained 1.2 and 2.6 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the second anal spine.

The third pelvic soft ray equals the first.

**Head.**—The lip is contained 2.0 times in the suborbital. The upper jaw extends to a point below the anterior third of the eye.

**Cirri.**—The length of the narial cirri is contained three to four times in the opercle length; that of the supra-orbital and nuchal 3.0 and 2.5 times respectively.

**Color.**—The body, head, and fins are dusky with dark spotting. These spots are most noticeable on the lighter lower sides. The throat and belly are mottled.

**Range.**—My specimens have been collected between Lobos de Tierra Bay and Independencia Bay, Peru. Delfin (1901) reports this species at Coquimbo, Chile.

**Material.**—Although none of Steindachner's types were examined, I studied 39 specimens of *L. philippii*: nine (USNM 128210) from dredges and gill nets off Lobos de Tierra Bay; one (USNM 128203) from a tidepool on Lobos de Afuera Bay; eleven (SU 6294 and USNM 53510) from Callao; five (SU 40877) from North Chincha Island; and thirteen (USNM 128206 and 128207) from Independencia Bay.

Named *philippii* for Rudolph A. Philippi. The spelling follows both Steindachner's original and the revised international rules.



LABRISOMUS (LABRISOMUS) SOCCORROENSIS,  
new species

Text-fig. 7

*Labrisomus* (*Labrisomus*) species Hubbs, 1952:  
105 (range).

*Diagnosis.*—This species apparently is most closely related to *L. xantusi*, from which it can be distinguished by having many scales on the cheek and scales along the entire upper margin of the opercle. *Labrisomus socorroensis* is readily distinguished from *L. multiporosus* (the species occupying localities closest to Socorro Island) by the above characters and by the limited number of lateral line pores on the head of *L. socorroensis*. It also differs from all *Labrisomus* species except *L. xantusi* and *L. striatus* by not having palatine teeth. *Labrisomus socorroensis* is easily distinguished from *L. striatus* and *L. kalisherae* by having more than 60 lateral line scales and a barred color pattern. *Labrisomus dendriticus* and *wigginsii*, which have no scales on the head or anal fin, also differ from the scaly *L. socorroensis* by having the anterior dorsal spine elongated.

Dorsal XVIII, 11; anal II, 18; pectorals 14.

*Scales.*—Lateral line 67 to 68; dorsal posteriorly to lateral line 15. Large patch of scales on cheek and on upper margin of opercle. Large patch of scales on membrane in front of each dorsal ray. A smaller patch on membranes in front of all anal rays. Proximal third of caudal scaled. Proximal third of pectorals scaled. Belly scales reduced in size. About eight predorsal scales. About 16 radii on posterior margin of body scales.

*Teeth.*—No enlarged canines behind patch of smaller jaw teeth. A row of large teeth on vomer. No teeth on palatines.

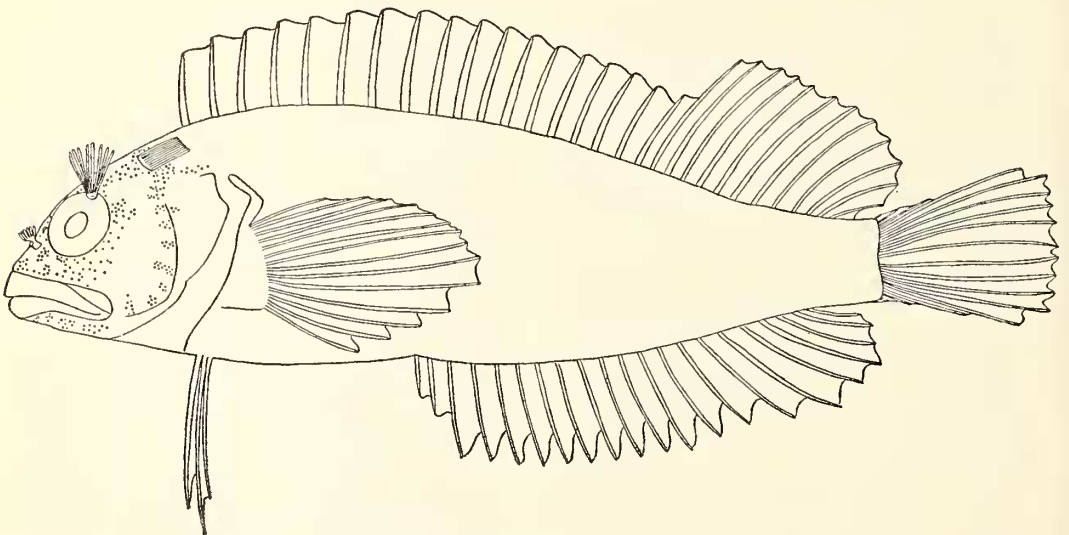
*Gill-rakers.*—4 + 6, all simple, third on lower arch reaches base of fourth.

*Lateral Line.*—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends no farther than one-fifth of the distance across the opercle. No pores posteroventral to the opercular scale patch. The suborbital branches extend less than one-fourth of the distance across cheek and one maxillary width from the tip of the maxillary. There is a large bare area in the middle of the occipital region.

*Fins.*—First dorsal spine short, equal to opercle length. The spine length increases to the fifteenth. The following spines are shorter to the next-to-last, which is slightly longer than the first. The second to sixth soft rays are one and one-half times as long as the longest spines. The others are progressively shorter. The first spine originates above the anterior part of the opercle; the first soft ray just behind the middle of the anal. The membranes are slightly incised, and the last ray is attached for one-half of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and seventh dorsal spines.

The first anal spine is contained 1.5 and 2.6



TEXT-FIG. 7. *Labrisomus* (*Labrisomus*) *socorroensis* holotype.



times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the third anal soft ray.

The third pelvic soft ray equals the first.

*Head*.—The lip is contained 1.2 times in the suborbital. The upper jaw extends to a point below the posterior half of the eye.

*Cirri*.—The length of the narial cirri is contained 2.8 times in the opercle length; that of the supra-orbital and nuchal 1.2 times.

*Color*.—The body has four distinct dark bars at the base of the fifth, fourteenth, last dorsal spine and eighth soft ray. Five less distinct bars occur between each of the above and anterior and posterior to them. The posterior bars are nearly complete. Those above the belly are interrupted and continued below by intermediate bars. The head is spotted above and mottled below with a faint double dark stripe from the eye to the corner of the pre-opercle. Faint ocellus on membrane between second and third dorsal spines. The following spines are marked with continuations of the body bars. The soft rays have spots that are arranged in anterodorsal-posteroventral stripes. The spots on the anal rays are arranged in anteroventral-posterodorsal stripes. The spots on the caudal rays are arranged in a cross-hatched pattern. Except for the dark bar at the pectoral base, the paired fins are dusky.

*Range*.—Socorro Island.

*Material*.—The holotype (CAS 1762) and paratype (CAS 1625) were collected from Socorro Island.

Named *socorroensis* because it is known from Socorro Island alone.

LABRISOMUS (LABRISOMUS) XANTUSI Gill\*

Text-fig. 8

*Labrosomus Xanti* Gill, 1860: 107 (new description, Cape San Lucas).

*Clinus xanti* Jordan & Gilbert, 1882: 368 (description and synonymy); 1883: 108 (Mazatlan record in part).

*Labrosomus xanti* Smith, 1885: 553 (discussion of separation from *nuchipinnis*, San Christobal); Evermann & Jenkins, 1891: 163 (synonymy in part).

*Labrisomus nuchipinnis xanti* Jordan, 1885a: 908 (range and synonymy in part); 1885b: 389 (range).

\* The International Commission on Zoological Nomenclature, during its 1953 meeting in Copenhagen, reversed the 1948 Paris decision on patronymics (Carl L. Hubbs, personal communication, 1953). As a result, the original orthography of Gill must be retained for this species. The proper spelling is *xanti*.

*Clinus Xanti* Vaillant, 1894: 73 (name only).

*Labrisomus xanti* Jordan, 1895: 501 (range in part), 513 (La Paz); Jordan & Evermann, 1896: 468 (listed); 1898: 2362 (description; range and synonymy in part); Osburn & Nichols, 1916: 178 (three collection stations listed, not all specimens necessarily belong to this species); Meek & Hildebrand, 1928: 937 (synonymy and range in part); Jordan, Evermann & Clark, 1930: 459 (synonymy; range in part); Herre, 1936: 415 (synonymy in part); Fowler, 1944: 521 (range in part); 1945: 280 (synonymy and range in part); Hildebrand, 1946: 398 (synonymy and range in part).

*Lepisoma xanti* Evermann & Radcliffe, 1917: 143, 145 (synonymy and comparison with *L. philippii* in part).

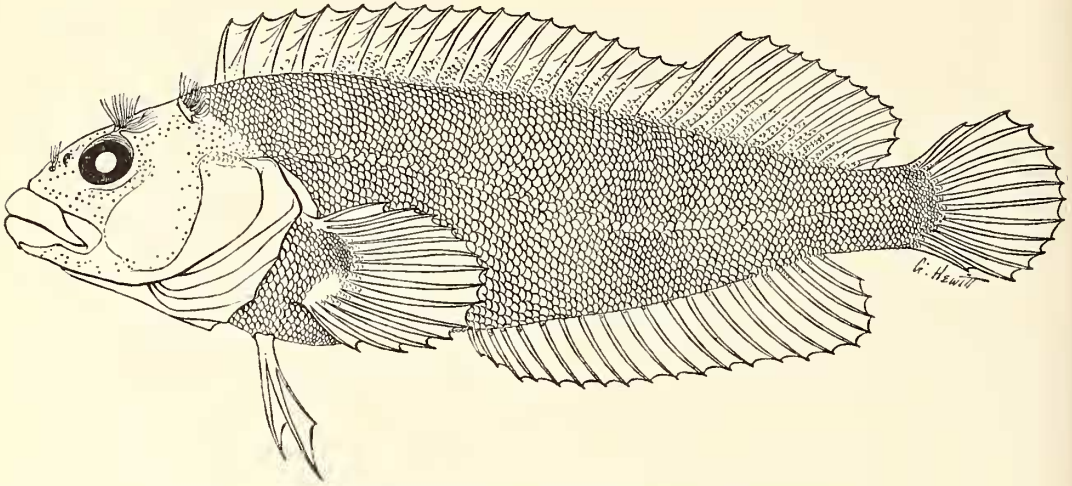
*Labrisomus (Labrisomus) xanti* Hubbs, 1952: 105 (range).

*Clinus philippii* (not of Steindachner) Lockington, 1881: 114 (Gulf of California).

*Diagnostic Characters of the Species*.—This species is most closely related to *L. socorroensis* and *L. multiporosus* and appears to be intermediate between them. It differs from *L. socorroensis* by having the cheek naked and only the posterior part of the upper margin of the opercle scaled. *L. xantusi* can be distinguished from *L. multiporosus* by: the width of each comb of nuchal cirri (approximately one-half of opercle length in *L. xantusi* and equal to the distance in *L. multiporosus*). *Labrisomus xantusi* has fewer lateral line pores on the head than *L. multiporosus*; although the number of pores varies with size, the percentage of the head covered by the pores remains constant. The area covered in the respective species is shown in Text-figs. 8 and 9. *Labrisomus xantusi* can be distinguished from all other *Labrisomus* species except *L. socorroensis* by the absence of palatine teeth. *Labrisomus xantusi* is easily distinguished from *L. striatus* and *L. kalisherae* by having more than 60 lateral line scales and a barred color pattern. *Labrisomus dendriticus* and *wigginsii*, which have no scales on the head or anal fin, also differ from the more heavily scaled *L. xantusi* by having the anterior dorsal spines elongated.

Dorsal XVII to XIX (XVIII), 10 to 12 (11 to 12); anal II, 17 to 19 (18); pectorals 13 to 15 (14).

*Scales*.—Lateral line 64 to 69 (66 to 68); dorsal posteriorly to lateral line 12 to 19 (14 to 17). Ten or more small imbedded scales on upper margin of opercle. A large patch of scales on membrane in front of all dorsal rays behind second spine. A smaller patch on mem-



TEXT-FIG. 8. *Labrisomus (Labrisomus) xantusi* from CAS 20626.

branes in front of all anal rays behind the second soft ray. Proximal one-fourth of caudal scaled. Proximal one-fifth of pectorals scaled. Belly scales reduced in size. About eight predorsal scales. About 18 radii on posterior margin of body scales.

*Teeth.*—No enlarged canines behind patch of smaller jaw teeth. About five large teeth on vomer. No teeth on palatines (two large specimens have two small teeth on each palatine).

*Gill-rakers.*—3 + 6 to 7, those on upper arch branched, lower arch simple.

*Lateral Line.*—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends no farther than one-fifth of the distance across the opercle. No pores posteroventral to the opercular scale patch. The suborbital branches extend less than one-fourth of the distance across cheek and one maxillary width from the tip of the maxillary. There is a large bare area in the middle of the occipital region.

*Fins.*—First dorsal spine moderate, slightly longer than the opercle. The spine length remains approximately equal to the third, then becomes longer to the thirteenth, which is one and one-half times the first. The following spines are shorter to the next-to-last, which is slightly longer than the first. The first to fifth soft rays are one and one-third times as long as the longest spines. The others are progressively shorter. The first spine originates above the anterior part of the opercle; the first soft

ray over the middle of the anal. The membranes are slightly incised, and the last ray is attached for three-fourths of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and seventh or eighth dorsal spines.

The first anal spine is contained 1.5 and 2.5 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the second anal soft ray.

The third pelvic soft ray equals the first.

*Head.*—The lip is contained 1.2 times in the suborbital. The upper jaw extends to a point below the middle of the eye.

*Cirri.*—The length of the narial cirri is contained 2.8 times in the opercle length; that of the supra-orbital 1.4 and the nuchal 1.3 times.

*Color.*—The body has four distinct dark bars at the base of the fifth, fourteenth, last dorsal spine and eighth soft ray. Five less distinct bars occur between each of the above and anterior and posterior to them. The posterior bars are nearly complete and those above the belly are interrupted and continued below by intermediate bars. The head is variably mottled and spotted with a faint doubled dark stripe from the eye to the corner of the pre-opercle. A distinct ocellus between the second and third dorsal spines. The rest of the fin either has a continuation of the body bars or spots which are arranged in anterodorsal-posteroventral stripes. The spots on the anal rays are arranged in anteroventral-posterodorsal stripes. The spots on the caudal rays are arranged in a cross-hatched



pattern. The spots on the pectoral rays are arranged in bars. The dark bar at the base of the pectoral is especially prominent ventrally. The pelvics are dusky.

*Range*.—Sebastian Vizcaino Bay to Cape San Lucas on the outer coast of Baja California, the Gulf of California to Mazatlan. It is also known on West San Benito Island and many islands in the Gulf of California.

*Material*.—The holotype (USNM 2334), here designated from two cotypes, was collected by J. Xantus from Cape San Lucas. The paratype (USNM 2335), collected with the holotype, was also examined. Five hundred fifty-six other specimens were also examined: one (USNM 30888) from Mazatlan; ten (UCLA W51-20 and W51-26) from Venados Island, near Mazatlan; one (UCLA W51-16) from Topolobampo Bay, Sinaloa; twenty-five (CAS 20626) from Bocochebampo Bay, near Guaymas, Sonora; sixty-six (UCLA W50-35, W50-37, W52-28, and W52-51) from around Punta de las Cuevas, near Guaymas; three (UCLA W50-23) from Punta Colorado, near Guaymas; eight (UCLA W52-1 and W52-4) from just south of the north end of Guaymas Harbor; nine (UCLA W52-12) from Estero Soldado, near Guaymas; thirteen (SU 16565, 16607, 16651 and 17749) from Outer San Carlos Bay, near Guaymas; one (SU 16513) from San Francisco Bay, near Guaymas; twenty-two (UCLA W50-59) from the south end of Pelican Island in Bahia Kino, Sonora; nineteen (UCLA W50-66) from Puerto Libertad, Sonora; eighty-one (SU 39935, 17540, 17542, 17544 and 17547, CAS 20629, CNHM 59549 and 59550, and USNM 165465) from just south of Punta Peñasco; eighty-eight (CAS 20627, MCZ 38002 and 38003, SU 17541, 17543 and 17551, TNHC 2962 and USNM 165466) from just north of Punta Peñasco; four (UCLA W52-74) from San Luis Island, Baja California; four (SU 17604) from Mejia Island, Baja California; six (SU 17613) from Partida Island (the northern one), Baja California; four (TNHC 2972) from just south of Los Angeles Bay, Baja California; three (SU 17614 and 17615) from San Francisquito Point, Baja California; two (NYZS 25283 and USNM 165467) from Inez Bay, Baja California; four (SU 17612) from Monserrate Island, Baja California; nine (SU 17611) from San Carlos Bay, Baja California; one (SU 17610) from Partida Island (the southern one), Baja California; one (CAS 20644) from Espiritu Santo Island, Baja California; three (SU 17609) from Bahia de los Muertos, Baja California; two (SU 3014) from La Paz, Baja California; one (USNM 165464) from Punta

Arenas, Baja California; seven (CAS 20628 and SU 17616) from Cape San Lucas, Baja California; four (SU 17550) from Arroyo Seco, Baja California; one (SU 17549) from Estero de la Purissima, Baja California; sixteen (including UCLA W52-84) from Punta Pequeña, Baja California; fifteen (TNHC 2963 and USNM 165468) from Abreojos Point, Baja California; three (CNHM 59554, SU 17546, and TNHC 2964) from Turtle Bay, Baja California; two (SU 17545) from West San Benito Island; and 117 (UCLA W51-221, W51-223, and W51-224) from Puerto Mala Arrimo in San Sebastian Vizcaino Bay, Baja California.

Named *xantusi* for Mr. John Xantus. The less satisfactory spelling, *xantusi*, is used instead of *xanti* to follow the revised international rules.

LABRISOMUS (LABRISOMUS) MULTIPOROSUS,  
new species

Text-fig. 9

*Clinus nuchipinnis* (not of Cuvier & Valenciennes) Günther, 1868: 389 (range in part).

*Clinus xanti* (not of Gill) Jordan & Gilbert, 1883: 108 (Mazatlan in part).

*Labrisomus nuchipinnis xanti* Jordan, 1885a: 908 (range and synonymy in part).

*Labrosomus xanti* Evermann & Jenkins, 1891: 163 (specimens; synonymy in part).

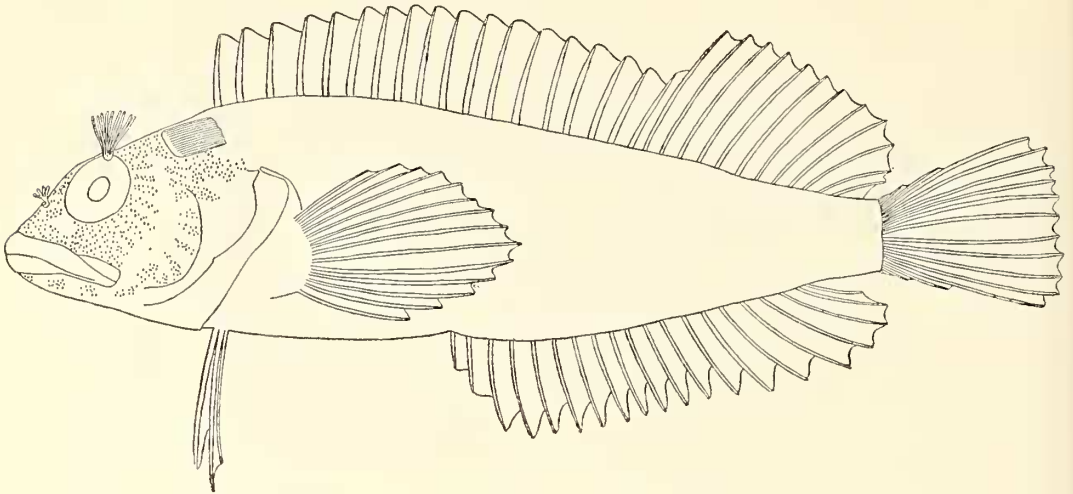
*Labrisomus xanti* Jordan, 1895: 500 (questions distinctness from *nuchipinnis*; range in part); Jordan & Evermann, 1898: 2363 (range and synonymy in part); Meek & Hildebrand, 1928: 937 (description; range and synonymy in part); Jordan, Evermann & Clark, 1930: 459 (range in part); Herre, 1936: 415 (description; synonymy in part); Fowler, 1944: 521 (range in part); 1945: 261 (synonymy and range in part); Hildebrand, 1946: 398 (description; synonymy and range in part).

*Lepisoma xanti* Evermann & Radcliffe, 1917: 143, 145 (description; synonymy and comparison with *L. philippii* in part); Nichols & Murphy, 1922: 513 (Peru).

*Labrisomus (Labrisomus) species* Hubbs, 1952: 105 (Mexico and Central America).

*Labrisomus (Labrisomus) species* Hubbs, 1952: 105 (Panama and South America).

*Diagnosis*.—*Labrisomus multiporosus* is most closely related to *L. xantusi* and *L. nuchipinnis*. The characters which I use to separate *L. xantusi* and *L. multiporosus* are listed under the diagnostic characters of the former species. *Labrisomus multiporosus*, *L. nuchipinnis* and *L. philippii* have the largest percentage of the surface area of the head pierced by lateral line pores of



TEXT-FIG. 9. *Labrisomus (Labrisomus) multiporosus*, 67 mm, from TNHC 2966.

all *Labrisomus* species (*L. philippii* has slightly less area covered, but there is considerable overlap). The presence of scales posterior to the opercular scale patch and the extent of the opercle covered by the branch of the pre-opercular canal at the middle of the opercle (from one-third to one-half of the opercle length in these three species and less than one-third of the opercle length in the others) are easy to observe. *Labrisomus multiporosus* and *L. wigginisi* have the width of the comb of nuchal cirri approximately 3.6% or more of the standard length, the remaining species have a narrower width of the comb of nuchal cirri. *Labrisomus multiporosus* differs from *L. nuchipinnis* by having: a more extensive patch of palatine teeth; no dark ocellus-like mark on the opercle; and the width of the nuchal cirri.

Dorsal XVII to XIX (XVII to XVIII), 11 to 13 (11 to 12); anal II, 17 to 18; pectorals 13 to 15 (14).

**Scales.**—Lateral line 65 to 69 (66 to 68); dorsal posteriorly to lateral line 12 to 21 (12 to 17). Less than five small imbedded scales on upper margin of opercle. A large patch of scales on membranes in front of all dorsal rays behind the second or third spine. A smaller patch on membranes in front of all anal rays behind the thirteenth soft ray. Proximal one-third of caudal scaled. Proximal one-fourth of pectorals scaled. Belly scales reduced in size. Four to six predorsal scale rows. Twenty to 21 radii on posterior margin of body scales.

**Teeth.**—No enlarged canines behind patch of smaller jaw teeth. Five or six large teeth in a row on vomer with an occasional small tooth

behind. A large patch of small teeth on palatines.

**Gill-rakers.**—2 + 7, all simple, third on lower arch reaches base of fourth.

**Lateral Line.**—Anterior scales on posterior straight segment of main canal have two external pores on their posterior surfaces, one on each side of the canal; posterior two or three have a canal with a pore at each end. The branch of the pre-opercular canal at the middle of the opercle extends almost one-half of the distance across the opercle. Many pores posteroventral to the opercular scale patch. The suborbital branches extend one-third of the distance across cheek and to the tip of the maxillary. The occipital region has many pores.

**Fins.**—First dorsal spine moderate, slightly longer than the opercle. The following three are approximately the same length, then the spine length becomes longer to the thirteenth, which is one and one-third times the first. The following spines are shorter to the next-to-last, which is slightly longer than the first. The first five soft rays are one and one-third to one and one-half times as long as the longest spines. The others are progressively shorter. The first spine originates above the anterior part or middle of the opercle; the first soft ray over the middle of the anal. The membranes are slightly incised, and the last ray is attached for two-thirds to three-fourths of its length to a membrane which is bound down to the caudal peduncle.

The caudal length equals the distance between the bases of the first and seventh dorsal spines.



The first anal spine is contained 1.4 to 1.5 and 2.5 to 2.6 times in the second spine and first soft ray respectively.

The longest pectoral ray reaches a point above the base of the first anal soft ray.

The third pelvic soft ray equals the first.

*Head*.—The lip is contained 1.2 times in the suborbital. The upper jaw extends to a point below the back of the pupil.

*Cirri*.—The length of the nasal cirri is contained 2.3 and 2.8 times in the opercle length; that of the supra-orbital 1.5 and the nuchal 1.4 to 1.6 times.

*Color*.—The body has four distinct dark bars at the base of the fifth, fourteenth, last dorsal spine and eighth soft ray. Five less distinct bars occur between each of the above and anterior and posterior to them. The posterior bars are nearly complete, and those above the belly are interrupted and continued below by intermediate bars. The head is variably mottled and spotted with a distinct doubled dark stripe from eye to the corner of the pre-opercle. A faint ocellus between the second and third dorsal spines. The fin either has a continuation of the body bars or spots which are arranged in anterodorsal-posteroventral stripes. The anal spots are arranged in anteroventral-posterodorsal stripes. The caudal spots are arranged in a cross-hatched pattern. The pectoral spots are arranged in bars. The dark basal bar is especially prominent ventrally. The pelvics are dusky.

*Range*.—Turtle Bay, Baja California, to Lobos de Afuera Island, Peru. In the Gulf of California it ranges as far north as Punta Peñasco. It is rare in the northern part of its Gulf of California range, and *L. xantusi* is rare on the southern coasts. Where they are sympatric, *L. multiporosus* specimens appear to be more common on rocks adjacent to sandy beaches.

*Material*.—The holotype (SU 17553) was collected by Carl L. Hubbs on September 4, 1946, from Ormos in Acapulco Harbor, Guerrero, Mexico. Two hundred sixty-one paratypes were examined: two (MCZ 38004 and USNM 94008) from Tangola-Tangola Bay, Mexico; one (USNM 165474) from Port Angeles, Mexico; twenty-three (TNHC 2966 and SU 17552) from Acapulco Harbor, Guerrero, Mexico; eighteen (SU 2894, UCLA W51-44, and USNM 47484 and 134910) from Mazatlan, Sinaloa, Mexico; thirty-six (UCLA W51-20 and W51-26) from Venados Islands, near Mazatlan; nine (UCLA W52-1 and W52-4) from just south of the north end of Guaymas Harbor, Sonora, Mexico; forty-three (UCLA W52-12) from the entrance to Estero Soldado, near Guaymas; four (UCLA W50-35, W50-37, and W52-28) from

Punta de las Cuevas, near Guaymas; nine (SU 17600, 17601, 17602 and 17750) from Outer San Carlos Bay, near Guaymas; one (UCLA W50-59) from Bahia Kino, Sonora, Mexico; five (UCLA W50-66) from Puerto Libertad, Sonora, Mexico; six (SU 17548, 17554, 17555 and 17557) from just south of Punta Peñasco, Sonora, Mexico; one (TNHC 2968) from just south of Los Angeles Bay, Baja California; five (SU 17605, 17606 and 17607) from San Francisquito Bay, Baja California; two (NYZS 24956 from Inez Bay, Baja California; one USNM 30743) from Cape San Lucas, Baja California; one (SU 17558) from Arroyo Seco, Baja California; twenty-one (CAS 774-782, and 787, SU 17603 and USNM 165469) from the vicinity of Magdalena Bay, Baja California; twenty-eight (SU 17556) from Estero de la Purissima, Baja California; thirty-four (including UCLA W55-84) from Punta Pequeña, Baja California; three (CAS 20630, CNHM 59552 and TNHC 2965) from Punta Abreojos, Baja California; and eight (CNHM 59551, MCZ 38005, and USNM 165470 and 165471) from Turtle Bay, Baja California. Forty-eight other specimens are not designated paratypes because they have differences from the northern specimens: eight (USNM 128211) from Lobos de Tierra Island; six (USNM 77520 and 128212) from Lobos de Afuera Island; three (USNM 107141 and 107145) from Paita, Peru; twelve (SU 37578 and 37579) from nine and one-half miles south of Zorritos Light, Peru; five (USNM 88794) from Guayaquil, Ecuador; one (USNM 88793) from Salinas, Ecuador; six (CNHM 59553, NYZS 28651F, and SU 17564) from Gorgona Island, Colombia; three (USNM 81917 and 82191) from Panama; and four (CAS 20631 and 24415 and SU 37577) from the Galapagos Islands.

Named *multiporosus* from the Latin *multus* = many, and *porus* = pores, for the many lateral line pores on the head.

The specimens from Panama, Ecuador, Peru and the Galapagos Islands usually have more dorsal and anal soft rays (average 29.50) than those from Mexico (average 29.05). When these counts are compared statistically a "t" value of 2.47 is calculated for 122 degrees of freedom, resulting in a probability of between 0.02 and 0.01. The difference is of marginal statistical significance, definitely not grounds for a distinct species. In no other morphologic character analyzed were the two groups separable.

#### LITERATURE CITED

ABBOTT, JAMES F.

1899. The marine fishes of Peru. Proc. Acad. Nat. Sci. Phila., 42: 324-364.

- BEEBE, WILLIAM, & JOHN TEE-VAN  
1933. Field book of the shore fishes of Bermuda. Putnam, New York: 337 pp.
- BREDER, CHARLES M., JR.  
1929. Field book of marine fishes of the Atlantic coast. Putnam, New York: 332 pp.
- CASTLENAU, FRANÇOIS L.  
1855. Animaux nouveaux ou rares recueillis, etc., dans l'Amérique du Sud. Paris, vol. 3: 112 pp., 50 pls.
- COPE, EDWARD D.  
1877. Synopsis of the cold blooded Vertebrata procured by Prof. James Orton during his exploration of Peru in 1876-77. Pisces. Proc. Am. Phil. Soc., 17: 41-49.
- CUVIER, G. L. C. F. D., & ACHILLE VALENCIENNES  
1836. Histoire naturelle des poissons. Paris, 11: xx + 506 pp., pls. 307-343.
- DEKAY, JAMES E.  
1842. Zoology of New-York, or the New-York fauna. Albany, part IV. Fishes: xiv + 415 pp.
- DELFIN, FÉDERICO T.  
1901. Catálogo de los peces de Chile. Rev. Chilena Hist. Nat., Valparaiso, vols. 2, 3, 4 (1898-1900). Reprinted with new pagination, Valparaiso, 1901: 133 pp.
- EKMÁN, SVEN  
1953. Zoogeography of the sea. Sidgwick & Jackson, Limited, London: xiv + 417 pp., 121 text-figs.
- EVERMANN, BARTON W., & OLIVER P. JENKINS  
1891. Report on a collection of fishes made at Guaymas, Sonora, Mexico, with descriptions of new species. Proc. U. S. Nat. Mus., 14: 121-165, 2 pls.
- EVERMANN, BARTON W., & LEWIS RADCLIFFE  
1917. The fishes of the west coast of Peru and the Titicaca Basin. Bull. U. S. Nat. Mus., 95: xi + 166 pp., 14 pls.
- FOWLER, HENRY W.  
1940a. Fishes obtained in Chile by Mr. D. S. Bullock. Proc. Acad. Nat. Sci. Phila., 92: 171-190.  
1940b. The fishes obtained by the Wilkes Expedition, 1838-1842. Proc. Am. Philos. Soc., 82: 733-800.  
1944. Results of the Fifth George Vanderbilt expedition (1941). Monographs Acad. Nat. Sci. Phila., no. 6. The fishes: 57-529, pls. 1-20.  
1945. Los peces del Peru. Mus. Hist. Nat. "Javier Prado," Lima, Peru: 298 pp.
- GILBERT, CHARLES H.  
1890. Scientific results of explorations by the U. S. Fish Commission steamer "Albatross." No. 12. A preliminary report on the fishes collected by the steamer "Albatross" on the Pacific Coast of North America during the year 1889, with descriptions of twelve new genera and ninety-two species. Proc. U. S. Nat. Mus., 13: 49-126.
- GILL, THEODORE  
1860. Monograph of the genus Labrosomus Sw. Proc. Acad. Nat. Sci. Phila., 12: 102-108.
- GUICHENOT, ALPHONSE  
1848. Fishes. In Gay. Historia física y política de Chile. Zoologica, vol. 2: 137-370.
- GÜNTHER, ALBERT  
1868. An account of the fishes of the states of Central America, based on collections made by Capt. J. M. Dow, F. Godman, Esq., and O. Salvin, Esq. Trans. Zool. Soc. London, 6, pt. 7: 377-494, pls. 63-87.
- HELLER, EDMUND, & ROBERT E. SNODGRASS  
1903. Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899. XV. New fishes. Proc. Washington Acad. Sci., 5: 189-229, pls. 3-19.
- HERRE, ALBERT W. C. T.  
1936. Fishes of the Crane Pacific Expedition. Field Mus. Nat. Hist., Zool. Ser., 21: 472 pp.
- HILDEBRAND, SAMUEL F.  
1946. A descriptive catalogue of the shore fishes of Peru. Bull. U. S. Nat. Mus., no. 189: xi + 530 pp., 95 figs.
- HUBBS, CARL L., & KARL F. LAGLER  
1947. Fishes of the Great Lakes Region. Cranbrook Inst. Sci., 26: i-xi + 1-186, 28<sup>o</sup> figs., 26 pls.
- HUBBS, CLARK  
1952. A contribution to the classification of the blennioid fishes of the family Clinidae, with a partial revision of the eastern Pacific forms. Stanford Ichth. Bull., 4: 41-165.
- JORDAN, DAVID S.  
1885a. A catalogue of the fishes known to inhabit the waters of North America, north of the Tropic of Cancer, with notes on the species discovered in 1883 and 1884. Rept. U. S. Comm. Fish., pt. 13 (for 1885—volume issued in 1887, separate in 1885): 789-973.  
1885b. A list of the fishes known from the Pacific coast of tropical America from the Tropic of Cancer to Panama. Proc. U. S. Nat. Mus., 8: 361-394.



1895. The fishes of Sinaloa. Proc. Calif. Acad. Sci., ser. 2, 5: 377-514, pls. 26-55.
1904. Notes on fishes collected on the Tortugas Archipelago. Bull. U. S. Fish Comm., 22: 539-544, 2 pls.
- JORDAN, DAVID S., & BARTON W. EVERMANN
1896. A check-list of the fishes and fish-like vertebrates of North and Middle America. Rept. U. S. Comm. Fish., 21: 207-584.
1898. Fishes of North and Middle America. Bull. U. S. Nat. Mus., no. 47, pt. 3: i-xxiv + 2183-3136.
- JORDAN, DAVID S., BARTON W. EVERMANN, & HOWARD W. CLARK
1930. Check list of the fishes and fishlike vertebrates of North and Middle America north of the northern boundary of Venezuela and Colombia. Rept. U. S. Comm. Fish. (for 1928), pt. 2: 670 pp.
- JORDAN, DAVID S., & CHARLES H. GILBERT
1882. Catalogue of the fishes collected by Mr. John Xantus at Cape San Lucas, which are now in the United States National Museum, with descriptions of eight new species. Proc. U. S. Nat. Mus., 5: 353-371.
1883. List of fishes collected at Mazatlan, Mexico by Charles H. Gilbert. Bull. U. S. Fish Comm., 5: 105-108.
- KENDALL, WILLIAM C., & LEWIS RADCLIFFE
1912. Report of the scientific results of the exploration to the eastern tropical Pacific by the "Albatross." The shore fishes. Mem. Mus. Comp. Zool. Harvard College, 35, no. 3: 75-171, 3 pls.
- LESUEUR, CHARLES A.
1825. Description of two new species of the Linnaean genus *Blennius* (*B. herminier*, *B. henzi*). Journ. Acad. Nat. Sci. Phila., new ser., 4: 361-364.
- LOCKINGTON, WILLIAM N.
1881. List of fishes collected by Mr. W. J. Fisher upon the coasts of Lower California, 1876-1877, with descriptions of new species. Proc. Acad. Nat. Sci. Phila., 33: 113-120.
- MEEK, SETH E., & SAMUEL F. HILDEBRAND
1928. The marine fishes of Panama. Field Mus. Nat. Hist., Chicago, Zool. Ser., 15, part 3: xxv-xxx + 709-1045, pls. 72-102.
- MIRANDA-RIBEIRO, ALIPIO DE
1918. Lista dos peixes Brasileiros do Museu Paulista. 3d Parte. São Paulo: 25 pp.
- NICHOLS, JOHN T., & ROBERT C. MURPHY
1922. On a collection of marine fishes from Peru. Bull. Amer. Mus. Nat. Hist., 46: 501-516, pls. 25-26.
- OSBURN, RAYMOND C., & JOHN T. NICHOLS
1916. Shore fishes collected by the "Albatross" expedition in Lower California with descriptions of new species. Bull. Amer. Mus. Nat. Hist., 35: 139-181, 15 figs.
- PHILIPPI, RUDOLPH A.
1866. Peces nuevos de Chile. Anales Univ. Chile, Santiago, 93: 375-390.
- QUOY, JEAN R. C., & PAUL GAIMARD
1824. Voyage autour du monde . . . exécuté sur les corvettes de S. M. "L'Uranie" et "La Physicienne" pendant les années 1817-20. Paris. Poissons: 192-401.
- REID, EARL D.
1935. Two new fishes of the families Dactyloscopidae and Clinidae from Ecuador and the Galapagos. Copeia, 1935: 163-166.
- ROCHEBRUNE, ALPHONSE T. DE
1879. Description de quelques espèces nouvelles de poissons propres à la Sénégambie. Bull. Soc. Philom. Paris, ser. 7, 4: 159-169.
- SMITH, ROSA (EIGENMANN)
1885. Notes on fishes collected at San Cristobal, Lower California, by Mr. Charles H. Townsend, Assistant, U. S. Fish Commission. Proc. U. S. Nat. Mus., 7: 551-553.
- SNOODGRASS, ROBERT E., & EDMUND HELLER
1905. Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899. 17. Shore fishes of the Revillagigedo, Clipperton, Cocos, and Galapagos Islands. Proc. Washington Acad. Sci., 6: 333-427.
- STARKS, EDWIN C.
1906. On a collection of fishes made by P. O. Simons in Ecuador and Peru. Proc. U. S. Nat. Mus., 30: 761-800, pls. 65-66.
- STEINDACHNER, FRANZ
1866. Ichthyologische Notizen (III). Sitzungsber. Ak. Wiss. Wien, 53, Abt. 1: 208-214, 2 pls.
1902. Herpetologische und ichthyologische Ergebnisse einer Reise nach Südamerika. Denks. Ak. Wiss. Wien, 72: 89-148, pls. 1-5.
- STEINITZ, H.
1950. On the zoogeography of the teleostean genera *Salarias*, *Ophioblennius* and *Labrisomus*. Est. Arch. Zool. Italiano, 35: 325-348.
- SWAINSON, WILLIAM
1839. The natural history and classification of fishes, amphibians, and reptiles, or monocardian animals. London, 2: vi + 452 pp.

## VAILLANT, LÉON L.

1894. Sur une collection de poissons recueillie en Basse-California et dans le Golfe par M. Léon Diguët. Proc. Soc. Philomath. Paris, ser. 8, 6: 69-75.

## VALENCIENNES, ACHILLE

1835. Ichthyologie des îles Canaries. In Webb and Berthelot. Histoire naturelle des îles Canaries, 2: 25 pls.